

Gryphæa, *Trigonia*, *Halobia*, and *Spiriferina*. Since several of these are not known in strata older than the Jurassic, it is probably right to class these strata as Jurassic, thereby ignoring the presence of the archaic genera here mentioned. This conclusion seems all the more reasonable when the present isolated position of the Dominion is considered. It is quite possible that another period of isolation had terminated at the beginning of the Jurassic period. An old fauna which had lived on during the period of isolation would then be mingled with the invading newer and more vigorous types. Such an explanation might reasonably account for the rapid change in life-forms which has caused Sir James Hector to class a conformable series of rocks as of an age extending from Permian to Jurassic.

ART. XXVII.—Notes on Coleoptera from the Chatham Islands.

By Major T. BROUN, F.E.S.

[Read before the Auckland Institute, 18th November, 1908.]

A COMPLETE list of the *Coleoptera* now proved to occur in these islands is given for reference. It is just possible that some other species may have been described by European authors, but the list includes all that were recorded by the late Captain F. W. Hutton and those whose descriptions follow the list.

Eighteen species appear to be purely endemic at the Chathams; the remaining twenty-three were originally found in New Zealand. All the genera were instituted for the reception of New Zealand species, with the exception of such as are more or less cosmopolitan—eight or nine altogether.

None of the genera and species recently described by me from the Auckland Islands are represented, so far as we are aware at present, at the Chatham Islands, but I feel confident that some, or closely allied forms, will be discovered ultimately.

LIST OF COLEOPTERA FROM THE CHATHAM ISLANDS.

Group ANCHOMENIDÆ.

1. *Anchomenus submetallicus*, White, Man. N.Z. Coleopt., p. 24.
2. „ *chathamensis*, Broun, sp. nov.

Group COLYMBETIDÆ.

3. *Rhantus pulverosus*, Stephens, Man. N.Z. Coleopt., p. 1333.

Group STAPHYLINIDÆ.

4. *Creophilus oculatus*, Fabricius, Man. N.Z. Coleopt., p. 107.

Group HISTERIDÆ.

5. *Sternaulax zelandicus*, Marseul, Man. N.Z. Coleopt., p. 162.

Group TROGOSITIDÆ.

6. *Leperina wakefieldi*, Sharp, Man. N.Z. Coleopt., p. 179.

Group COLYDIIDÆ.

7. *Rhitudinotus squamulosus*, Broun, Man. N.Z. Coleopt., p. 204.

Group HEMIPEPLIDÆ.

8. *Diagrypnodes wakefieldi*, Waterhouse, Man. N.Z. Coleopt., p. 217.

Group LUCANIDÆ.

9. *Lissotes capito*, Deyrolle, Trans. Ent. Soc., 1873, p. 339.
 10. *Ceratognathus helotoides*, Thomson, Man. N.Z. Coleopt., p. 254.
 11. *Mitophyllus reflexus*, Broun, sp. nov.

Group MELOLONTIIDÆ.

12. *Odontria zealandica*, White, Man. N.Z. Coleopt., p. 270.

Group ELATERIDÆ.

13. *Thoranus wakefieldi*, Sharp, Man. N.Z. Coleopt., p. 280.
 14. „ *lavithorax*, White, Man. N.Z. Coleopt., p. 282.
 15. *Mecastrus convexus*, Sharp, Man. N.Z. Coleopt., p. 293.
 16. *Psorochroa granulata*, Broun, Man. N.Z. Coleopt., p. 773.

Group CLERIDÆ.

17. *Phymatophaca electa*, Pascoe, Man. N.Z. Coleopt., p. 334.

Group HELEIDÆ.

18. *Cilibe pascoei*, Bates, Man. N.Z. Coleopt., p. 372.
 19. „ *saragoides*, Pascoe.
 20. „ *subcostatus*, Sharp, Ent. Mag., April, 1903.

Group EDEMERIDÆ.

21. *Sessinia strigipennis*, White, Man. N.Z. Coleopt., p. 420.
 22. *Thelyphassa diaphana*, Pascoe, Man. N.Z. Coleopt., p. 422.

Group OTIORHYNCHIDÆ.

23. *Cecyropa tychioides*, Pascoe, Man. N.Z. Coleopt., p. 437.
 24. *Inophtæus traversi*, Pascoe, Man. N.Z. Coleopt., p. 439.

Group ERIRHINIDÆ.

25. *Stephanorhynchus purus*, Pascoe, Man. N.Z. Coleopt., p. 463.

Group CRYPTORHYNCHIDÆ.

26. *Psepholar sulcatus*, White, Man. N.Z. Coleopt., p. 479.
 27. *Aldonus hylobioides*, White, Man. N.Z. Coleopt., p. 483.
 28. „ *chathamensis*, Sharp, Ent. Mag., April, 1903.
 29. *Pseudoreda tibialis*, Broun, Man. N.Z. Coleopt., p. 482.
 30. *Acalles fougeri*, Hutton, Trans. N.Z. Inst., 1897, p. 157.

Group PLATYPIDÆ.

31. *Platypus apicalis*. White, Man. N.Z. Coleopt., p. 541.

Group CERAMBYCIDÆ.

32. *Zorion minutum*, Fabricius, Man. N.Z. Coleopt., p. 584.
 33. „ *opacum*, Sharp, Ent. Mag., April, 1903.
 34. *Xuthodes punctipennis*, Pascoe, Man. N.Z. Coleopt., p. 580.
 35. „ *divergens*, Broun, Man. N.Z. Coleopt., p. 581.

Group LAMIDÆ.

36. *Nylotoles costatus*, Pascoe, Man. N.Z. Coleopt., p. 599.
 37. „ *traversi*, Pascoe, Man. N.Z. Coleopt., p. 599.
 38. „ *schauinslandi*, Sharp, Ent. Mag., April, 1903.
 39. „ *abnormalis*, Sharp, Ent. Mag., April, 1903.
 40. *Hybolasius trigonellaris*, Hutton, Trans. N.Z. Inst., 1897, p. 158.
 41. *Tetrorca cilipes*, White, Man. N.Z. Coleopt., p. 609.

LIST OF INTRODUCED SPECIES.

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| <i>Aphodius granarius</i> | } Recorded by the late Captain F. W. Hutton, Trans.
N.Z. Inst., 1897, pp. 156-58. |
| <i>Lacon murinus</i> | |
| <i>Otiorhynchus sulcatus</i> | |
| <i>Coccinella 11-punctata</i> | |

Group ANCHOMENIDÆ.

Anchomenus chathamensis, sp. nov.

Suboblong, slightly convex, nitid, piceous: the legs, antennæ, and palpi rufo-piceous; lateral margins of thorax and elytra similarly rufescent.

Head oviform and, including the large eyes, rather broader than front of thorax: irregularly rugose behind the inter-antennal groove, smooth on the back part. Labrum large, entire. Antennæ with the basal 3 joints shining and glabrous, 2nd joint half the length of the 3rd. Thorax one-fourth broader than long, its sides with well-developed margins, moderately rounded, very gradually narrowed behind the middle, posterior angles nearly rectangular but obtuse, the base feebly rounded towards the sides, apex incurved; disc moderately convex, with feebly impressed striae across it, dorsal furrow indistinct near the base and apex, near the front there is an indistinct transverse impression, basal fossæ large. Scutellum smooth. Elytra oblong, slightly and gradually widened backwards, slightly sinuate but evidently obliquely narrowed towards the apices; shoulders a little curvedly narrowed, yet rather wider than the base of thorax; the suture is somewhat elevated posteriorly, the 4 discoidal striae on each elytron are well marked but impunctate, the outer ones are finer, 3rd interstices tripunctate.

Tarsi setose, the anterior spongy underneath, their basal 2 joints moderately dilated and oblong, the 3rd also dilated but shorter and more narrowed near the base, 4th small and cordiform, basal joint of the posterior grooved along the outside. Palpi rather short, terminal articulation sub-cylindric.

Underside shining piceous, last ventral segment very broadly rounded, almost truncate, with a single setigerous puncture near each side at the apex.

♂. Length, $3\frac{3}{4}$ lines; breadth, $1\frac{1}{2}$ lines.

Chatham Islands; February, 1907.

One example, forwarded by Dr. W. B. Benham for identification. It is somewhat similar to *A. lawsoni*, but smaller and more depressed, the sides of the elytra more explanate behind, the thorax relatively larger and less rounded laterally; frontal foveæ indefinite, &c.

Group 1ESALIDÆ.

Mitophyllus reflexus, sp. nov.

Oblong, rather elongate; subdepressed, subopaque, piceo-rufous, margins of thorax and elytra and the legs infusate red, sparingly clothed with flavescent setæ; antennæ, tarsi, and palpi red.

Head much narrowed behind the large and very prominent eyes, broadly depressed between the greatly elevated antennal tubercles, closely punctate. Mandibles rather small and broad, bifid at apex. Antennæ well developed, basal joint elongate, stout and much curved, 2nd very short, joints 3 and 4 equally elongate, 5th evidently shorter than the preceding one, 6th very short, 7th short and slightly prolonged towards the front; club composed of 3 long lobes, bearing numerous slender outstanding setæ. Thorax transverse, anterior angles obtusely rounded, the posterior rectangular; its sides explanate and obviously reflexed, apex subtruncate, base widely bisinuate; its sides almost evenly rounded, yet a little narrowed towards the front; its surface distinctly and closely punctured, less closely at each side of the middle in front, and having at the base a narrow elongated smooth space. Scutellum large. Elytra oblong, parallel-sided, with a depression inside each shoulder; they are closely and distinctly punctured, and exhibit 3 or 4 feebly impressed longitudinal striæ. Tibiæ elongate, the intermediate curvate and finely asperate, the anterior subserrate externally, with a very small denticle above the middle and not in the least protuberant at the extremity. Tarsi slender and elongate, basal joint of the posterior short, 2-4 decrease in length, all however unusually long, the terminal slender and as long as the preceding 3 united; claws very long and slender.

♂. Length, $4\frac{1}{4}$ -5 lines; breadth, $1\frac{1}{2}$ -2 lines.

Chatham Islands.

Described from two specimens found by Professor W. B. Benham in February, 1907. They differ in almost every detail from the typical New Zealand species (*M. irroratus*). The very prominent eyes, explanate and reflexed thoracic margins, and strongly elevated antennal tubercles are sufficient for immediate identification.

Cilibe saragoides.

Oblong-oval, moderately convex, subopaque, piceous, elytra more rufescent, tarsi and antennæ pitchy-red.

Head closely punctate. Thorax transverse, its sides broadly concave, with reflexed margins, gradually narrowed towards the anterior angles, which extend beyond the front of the eyes, near the base they are straight, the posterior angles being subacute, directed backwards, and resting on the elytra; base slightly and widely bisinuate, the apex deeply incurved; the disc finely and not closely punctured, more closely and coarsely but not deeply at the sides. Scutellum broadly triangular, with a few minute punctures. Elytra transversely convex, their sides very broadly expanded and reflexed, becoming less so near the middle, still narrower behind, and

simple at the extremity, the base is broader than that of the thorax, they are slightly but widely sinuate before the middle femora; the broad grooves are opaque, with irregular punctures, so that the finely punctured interstices, which are slightly shining, appear somewhat costiform; the broad marginal channels are indistinctly sculptured, there is no perceptible granulation; near each side, at the base, there is a broad impression, which, however, may not be a constant character.

The broadly expanded sides distinguish this species.

Length, $5\frac{1}{4}$ lines; breadth, $2\frac{1}{2}$ lines.

Pitt's Island.

My specimen was presented to me over twenty years ago by the late F. P. Pascoe, who, no doubt, had described it under the name I have attached to it; its description, however, I have not seen.

DESCRIPTIONS OF COLEOPTERA FROM THE CHATHAM ISLANDS, BY DR. D. SHARP, COPIED FROM THE "ENTOMOLOGISTS' MAGAZINE" FOR APRIL, 1903.

Group HELEIDÆ.

Cilibe subcostata.

Nigra vel picea, minus depressa, fortiter sculpturata, opaca, elytris evidenter subsulcatis.

Long., $13\frac{1}{2}$ mm.

This is distinguished from all the other species by the peculiar sculpture of the elytra, which, however, is only an exaggeration of what we find in some other forms. The front angles of the thorax are much produced, and the sides are much explanate, their margins a little sinuate; the hind angles much produced backwards and markedly acute; the punctuation at the sides is very dense, on the disc it is scanty, but the surface is not in the least shining. The elytra are rather short, and have a vague costation, the very slightly elevated ribs are separated by coarse punctures; this sculpture sets off and makes evident the ribs.

Professor Schauinsland found a small series of this species. It is nearest allied to *C. pascoei*, Bates, of Pitt's Island, a species which was also met with there by the German traveller. *C. pascoei* is, however, rather more elongate and less convex in form, and with the sculpture of the elytra different, there being merely traces of the longitudinal ribs. Professor Schauinsland's specimens are intensely black, being considerably darker in colour than Mr. Bates's type. I have dissected the sexes of *C. subcostata*, and do not find any external marks to distinguish them.

Group CRYPTORHYNCHIDÆ.

Aldonus chathamensis.

Ferrugineus vel piceus, setis erectis numerosis superne vestitus, haud squamosus, rude sculpturatus; subtus setosus, inter setas squamis perpaucis munitus.

Long., $7\frac{1}{2}$ –13 mm.

Distinguished from *A. hylobioides* and all the other species ascribed to the genus by the absence of scales from the surface. The rostrum is longer than it is in *A. hylobioides*; it bears fine erect hairs, but in consequence of the absence of scales its coarse sculpture can be distinctly seen. Thorax very rough, with tubercular sculpture, with fine, short, erect hairs, and with

still shorter, very slightly curved, thicker, more pallid setæ, which represent the squamosity that is so remarkable in the other species. The elytra are rather deeply striate, and the striæ have very large punctures, separated only by short intervals one from the other.

Chatham Islands; Professor Schauinsland.

Group CERAMBYCIDÆ.

Zorion opacum.

Fusco-testaceum, supra submetallico-nitens, sericeo-subopacum; antennis pedibusque testaceis, his femoribus basi excepta rufo-obscuris, illis fusco-annulatis; elytro singulo ante medium fascia pallida transversa marginem lateralem fere attingente.

Long., 4-5 mm.

This comes very near to *Z. minutum*, but is distinguished by the peculiar pallid suffused colour and the silky dullness of the surface. The thorax, instead of being polished, is dull, and covered with a slight sculpture, a sort of minute wrinkling of the surface. The elytra are rather longer than in the other species.

Chatham Islands; Professor Schauinsland. Three specimens.

The British Museum collection includes a specimen of this species said to be from Otago. This locality I think very doubtful.

Group LAMIIDÆ.

Xylotoles schauinslandi.

Fusco-rufus, supra viridescens, nitidus, antennis pedibusque rufis; elytris tricostatis, costis at apicem fere dualis, interstitiis irregulariter interruptim costatis.

Long., 10 mm.

This species comes very naturally between *X. traversi* and *X. costatus*. It is not half the size of the latter: but is a little longer than *X. traversi*, more elongate, with the sculpture more developed, and the costation continued near to the tip. Of the forms found on the mainland, it is perhaps nearest to *X. rugicollis*, but it is very different in colour, and the elytra are singly rounded at the tip. The thorax is elongate and subcylindric, and bears 2 transverse channels; otherwise it is very indistinctly sculptured. The scutellum is covered with pallid pubescence. The elytra have each an elevated rib running along the suture, and outside this 3 others, the space between bearing much coarse irregular sculpture; the 3rd costa is itself divided behind the shoulder so as to fork somewhat, and form, in fact, 2 costæ. The ventral segments have each a conspicuous spot of yellow pubescence at the side.

The four specimens found by Professor Schauinsland differ but little, and the British Museum collection has two others.

Chatham Islands; Professor Schauinsland.

Xylotoles abnormalis.

Minutus, brevis, testaceus, pallidus, tomentosus; thorace fortiter transversus; corporis latera longitudinaliter fuscuscente.

Long., 5 mm.

This minute Lamiid looks like a *Hybolasius*, but as it is flightless I place it in *Xylotoles*, where it will come near to *X. huttoni*. The front of the head is very low, and the mouth much inflexed. The antennæ have the 3rd

and 4th joints very elongate, the 4th a little the shorter, but quite twice as long as the 5th ; from this to the end each is slightly shorter than its predecessor. The thorax is scarcely so long as broad, infusate at the sides and across the middle. The after-body is short, the elytra covered with minute tomentum, which allows, however, numerous small pits to be seen ; they are pallid, but at each side there is a large irregular dark patch, which beyond the middle approaches near to the suture. Under-surface infusate. Femora short and thick, yellow, with dark marks.

Chatham Islands ; Professor Schauinsland. Two specimens.

ART. XXVIII.—*Revision of the New Zealand Cossonidae, with Descriptions of New Genera and Species.*

By Major T. BROUN, F.E.S.

[Read before the Auckland Institute, 18th November, 1908.]

OWING to the difficulties encountered by local entomologists in identifying the numerous species, nearly all small, often without very perceptible distinguishing characteristics, and, as a rule, inconspicuous and uninteresting, I determined to undertake the task of revision. The resolution was easy, the accomplishment just the reverse.

Any naturalist who has really studied these minute creatures will readily acknowledge that the work of rearranging and classifying such a complex assemblage was an undertaking of more than ordinary difficulty.

A distinguished British entomologist, with the best typical collections of insects and books of reference in the world easily accessible, when dealing with about twenty species of a nearly allied group consisting of 108 genera, remarked that "The study of these genera is attended with great difficulties, for they are divided from one another by no strongly marked peculiarities," &c. So, although he stated that these twenty species represented "a considerable number of distinct genera," only two new genera were described, all the other species being referred to the typical genus of the group, and there they have remained for upwards of thirty years. As the members of that group are much larger, and differentiated by more easily seen characters, it is unlikely that our *Cossonidae* would be more systematically dealt with.

In 1873 no less than 123 genera, including five from New Zealand, were known to occur in various parts of the world. A great many of these are rare, and, as there is nothing very attractive about their general appearance, most collectors during their travels make no special search for them, consequently any New Zealand student will find it nearly impossible to obtain accurately named specimens of more than a dozen of these exotic genera for comparison with our own, so that in attempting to classify and name our indigenous species he must carefully study the Latin descriptions of these 123 genera. Any naturalist who has made the experiment will know what that means.